

## INTERLOCKING FASTENERS FOR MOUNTING WALL-HUNG ARTICLES

### 5 BACKGROUND AND SUMMARY OF THE INVENTION

Elongate clips are known in the prior art for hanging large objects on a wall. These clips commonly are in the form of an elongate metal bar having a contact surface along one edge that is configured such that when one piece of the clip  
10 is attached to the wall and another piece of the clip is reversed top to bottom and front to back and is attached to the object being hung, the contact faces of the respective clip pieces interact to suspend the hung object from the wall. One such prior art clip is sold by the assignee of the subject application, Brooklyn Hardware, LLC, under the trademark PANELCLIP ®.

15 In this prior art clip the contact surface comprises a short horizontal face adjacent to each side of the clip and a much larger angled face which extends between the horizontal faces at a shallow angle. The long face at a shallow angle is what causes the two clip pieces to seat completely and thus hold the hung object tightly against the wall. However, if the entire contact surface consists of a single  
20 angled face, the weight of the hung object will cause the clip piece attached to it to gradually become wedged under the clip piece that is attached to the wall. With time this would cause the clip piece to be pulled loosened from the wall and the hung object would fall away from the wall. The two horizontal faces in the prior art clip create a positive stop that prevents this from happening.

25 However, in order to provide the necessary seat for this type of a clip to work, the angled face must be quite long. This length coupled with horizontal stops on each side of the angled face which are large enough to provide a positive

stop requires the clip to have a minimum thickness regardless of how light the hung object might be. Thus, the prior art clips do not work well for light signs, artwork and similar light objects which preferably are hung close to the wall.

The subject invention overcomes this shortcoming of the prior art clips  
5 by providing an elongate clip having parallel planer first and second sides and a contact face that extends between the sides along one elongate edge of the clip. The contact face is Z-shaped in cross section. Thus, when one piece of the clip is attached to an object which is to be hung and a second piece of the clip is reversed front to back and top to bottom and attached to a wall the entire area of contact between the  
10 two pieces is at a shallow angle and thus wedging occurs over the entire contact area.

The foregoing and other objectives, features, and advantages of the invention will be more readily understood upon consideration of the following detailed description of the invention, taken in conjunction with the accompanying drawings.

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#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 is a foreshortened perspective view of a clip embodying the subject invention.

FIG. 2 is an end elevational view of the clip of FIG. 1.

20 FIG. 3 is an end elevational view of the clip of the subject invention showing how it is used to hang an object from a wall.

FIG. 4 is a fragmentary end elevational view, at an enlarged scale, showing the contact surface of two clip pieces in interlocking engagement.

FIG. 5 is an exploded perspective view showing how a clip of the subject invention is attached.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

5                   Referring to the drawings, an elongate clip 10 has a first side 12 and a parallel second side 14 which are separated from one another to provide a predetermined clip width  $w$ . The clip preferably is made from metal, such as aluminum, by extruding or stamping, but it also can be made from plastics or other material having sufficient strength for this purpose. One elongate edge of  
10 the clip 10 is a Z-shaped contact surface 16 which is configured such that when one piece of the clip 10a is attached to a wall 18 and another piece of the clip 10b is reversed top to bottom and front to back and is attached to an art piece 20, or another object that is to be hung on the wall, the contact surface 16a of the clip piece 10a engages the contact surface 16b of the clip piece 10b to suspend the art  
15 piece from the wall.

                  The contact surface 16 includes a first face 22 which angles forwardly from the first side 12 at an angle A, a second face 24 which angles rearwardly from the second side 14 at an angle B, and a third face 26 which extends between the first and second faces and which is at an angle C with  
20 respect to the first and second sides 12, 14. The angles A and B are the same as, or close to, one another. In the preferred embodiment illustrated, the angles A and B are  $35^\circ$ . The angle C is considerably shallower than the angles A and B. In the preferred embodiment, angle C is  $5^\circ$ . The foregoing angles are for a clip having an overall width  $w$  of 0.187 inches and may vary for a thicker or thinner

clip. The first face 23 is slightly longer than the second face 24, as will be more fully explained later, but their lengths are similar. The third face 26 is considerably longer than either the first or second faces. Thus, the first face 22 contacts the first side 12 at a point which is forward of the point where the second face 24 contacts the second side 14. In the embodiment illustrated with the width  $w$  being 0.187 inches the third face has a length of 0.439 inches.

The first face 22 has a distal extremity 26 and the second face 24 has a distal extremity 28. The distal extremities are preferably slightly rounded. The distal extremity 26 of the first face 22 is offset inwardly from the first side 12 by a distance  $D$ , and the distal extremity 28 of the second face 24 is offset inwardly from the second side 14 by a distance  $E$ , which is less than the distance  $D$ . In the preferred embodiment illustrated the distance  $E$  is 0.021 inches less than the distance  $D$ . As a result, when two pieces of the clip are interconnected one is slightly offset from the other, FIGs. 3 and 4. The purpose of this will be explained later.

A recess 30 is formed in the first side 12, and one or more openings 32 extend between the recess 30 and the second side 14. Screws 34, or similar fasteners, extend through the openings 32 to attach a clip piece to an art piece 20 or wall 18.

In use the clip 10 is cut to provide two clip pieces 10a and 10b having the proper length for the item that will be hung. One piece of the clip 10a is attached to the wall 18 with the contact surface 16a facing upwardly. In the drawing attachment is with screws 32, but any type of attachment device can be used for this purpose. The recess 30 in the clip piece allows the use of fasteners

with projecting heads without the heads extending beyond the first side 12 of the clip piece. The clip piece 10a needs to be located on the wall roughly centered over where the art piece 20 is to be hung. The other clip piece 10b is rotated front to back and top to bottom and is attached to the art piece 20 with the contact surface 16b facing downwardly. Again, screws 32 or other suitable fasteners can be used for this purpose. The art piece is then hung by lifting it up against the wall and engaging the contact face 16b of the clip piece 10b with the contact face 16a of the clip piece 10a, such that the two clip pieces interact as shown in FIG.

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10                   The Z shape of the contact surface allows the entire contact surface to be at the shallow angle necessary for clip pieces of this type to seat, and yet provides a positive stop so that the clip piece 10b on the art piece cannot work its way behind the clip piece 10a on the wall. Thus, the clip can be considerably thinner than a clip having separate horizontal stops.

15                   As mentioned above, the fact that the first distal extremity 26 is offset from the first side 12 by a greater amount than the second distal extremity 28 is offset from the second side 14 creates a discontinuity between the aligned sides of the two clip pieces when they are interconnected. Referring to FIG. 4, in which this offset is exaggerated for illustration purposes, the weight of the hung art piece 20 creates a force F which urges the second clip piece 10b downwardly towards the first clip piece 10a. When this occurs the offset causes the back of the art piece and the wall to be locally compressed which in turn creates compression between the two contact surfaces 16a and 16b. This compression

holds the two clip pieces tightly together and prevents movement of the art piece relative to the wall.

The terms and expressions which have been employed in the foregoing specification are used therein as terms of description and not of limitation, and there is no intention, in the use of such terms and expressions, of excluding equivalents of the features shown and described or portions thereof, it being recognized that the scope of the invention is defined and limited only by the claims which follow.

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